

3.4 Graphing of Sine & Cosine Functions

Name _____ Date _____ Period _____

Find the exact value of each trigonometric function using the unit circle.

1. $\sin \frac{\pi}{6}$

2. $\sec \frac{\pi}{3}$

3. $\cos \frac{\pi}{2}$

4. $\cot \frac{\pi}{6}$

5. $\tan \frac{\pi}{4}$

6. $\csc \frac{\pi}{3}$

Find the coordinates of each point after it is moved a) $\frac{\pi}{4}$ units to the right and b) $\frac{\pi}{3}$ units to the left.

7. $(0,0)$ a)

b)

8. $\left(\frac{\pi}{2}, 3\right)$ a)

b)

9. $\left(\frac{\pi}{3}, 0\right)$ a)

b)

Find the coordinates of each point after it is moved $\frac{\pi}{6}$ units to the right and 2 units upward.

10. $(\pi, -1)$

11. $\left(-\frac{3\pi}{2}, 1\right)$

12. $\left(\frac{\pi}{3}, -2\right)$

Determine the point that lies midway between the two given points.

13. $(\pi,0)$ and $(2\pi,0)$

14. $\left(\frac{\pi}{6},1\right)$ and $\left(\frac{\pi}{2},1\right)$

Determine the amplitude, period, frequency, phase shift, and range for each function.

15. $f(x)=\cos\left(x-\frac{\pi}{2}\right)$

16. $f(x)=-2\sin\left(x+\frac{\pi}{3}\right)$

17. $f(x)=3\sin(4x)$

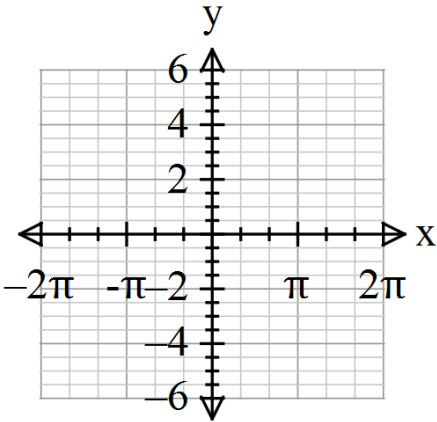
18. $f(x)=-\cos\left(\frac{x}{2}\right)+3$

Determine the amplitude, phase shift, period, frequency, and range for each function. Make a table with the five key points and sketch at least one cycle of the graph with the five key points from the table.

(See example from notes.)

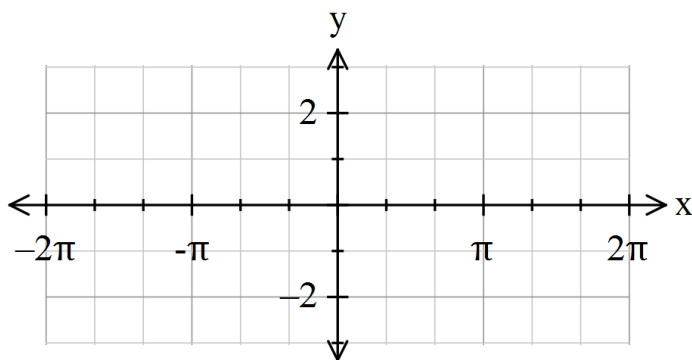
19. $f(x)=-\sin(x)$

x	f(x)



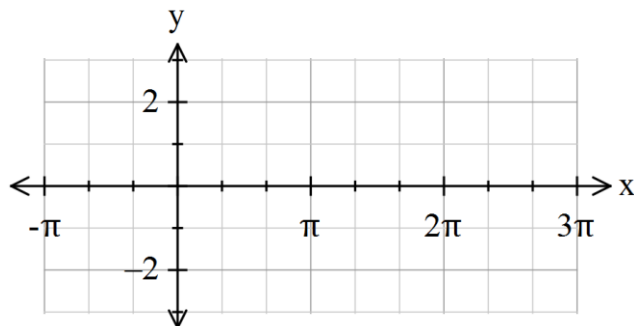
20. $f(x) = \frac{1}{2}\cos(x)$

x	f(x)



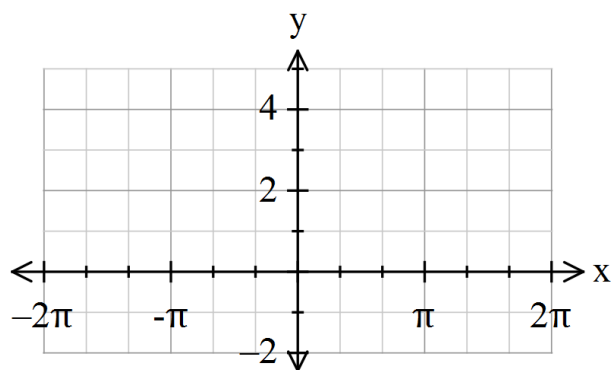
21. $f(x) = \cos\left(x - \frac{\pi}{3}\right)$

x	f(x)



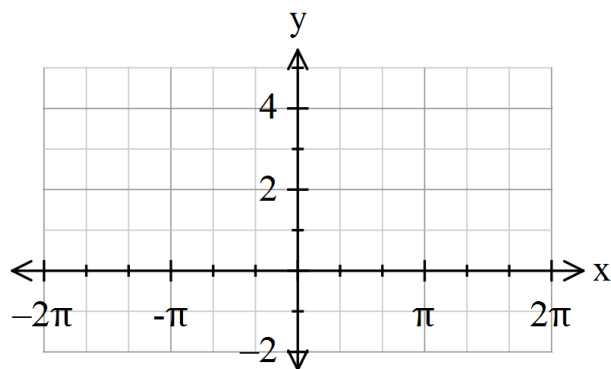
22. $f(x) = \sin\left(x + \frac{\pi}{4}\right) + 2$

x	f(x)



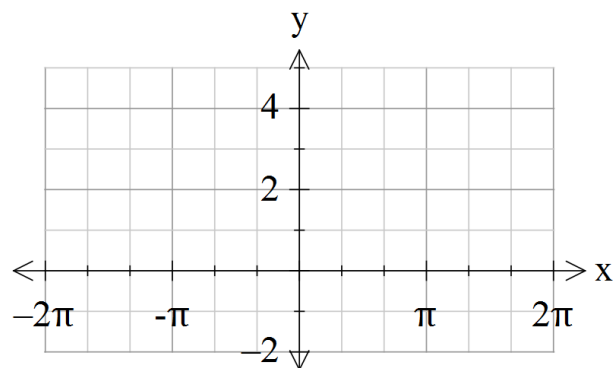
23. $f(x) = 2\cos\left(x + \frac{\pi}{6}\right) + 1$

x	f(x)



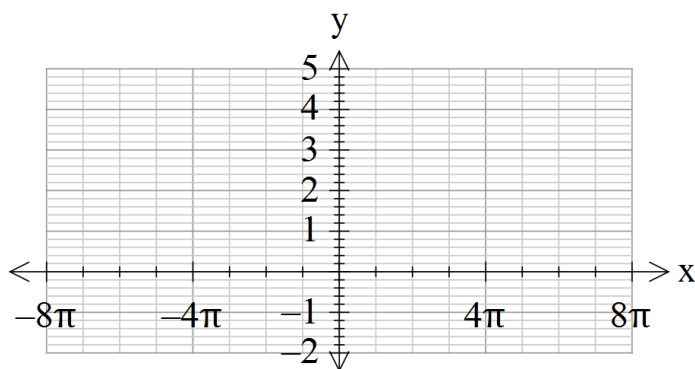
24. $f(x) = \cos(4x) + 2$

x	f(x)



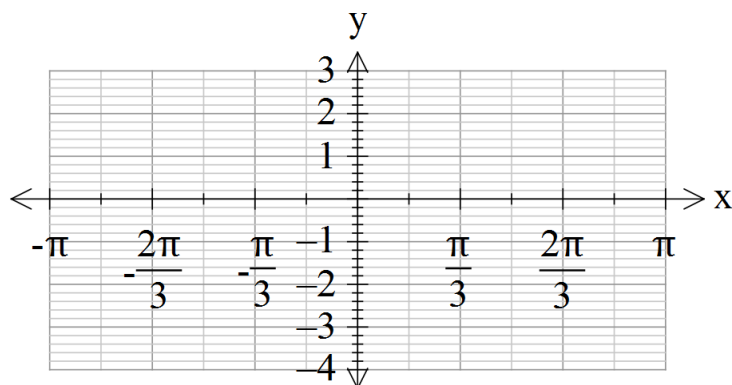
25. $f(x) = 2 - \sin\left(\frac{x}{4}\right)$

x	f(x)



25. $f(x) = -\frac{1}{2} \sin\left[3\left(x - \frac{\pi}{6}\right)\right] - 1$

x	f(x)



26. Write an equation of the form $y = A \sin[B(x - C)] + D$ whose graph is the given sine wave.

